WHAT IS CLAIMED:

1. An image reading apparatus that reads out an original document image synchronously with a frequency dispersion clock gained by a modulation which makes the frequency of a reference clock change cyclically at a predetermined modulation period, comprising:

a first signal generating section that generates a first signal which turns into assert state at a predetermined period;

a second signal generating section that generates a second signal which turns into assert state at a period synchronous with the modulation period of the frequency dispersion clock; and

a line scanning section that moves a scanning position on the original document image in an auxiliary scanning direction and scans the original document image in a main scanning direction perpendicular to the auxiliary scanning direction each time when both the first signal and the second signal turn to assert state and thereby reads the original document image and outputs an analog image signal.

2. The image reading apparatus according to claim 1 wherein the second signal generating section generates the second signal which remains in assert state for more than one period of the frequency dispersion clock.

3. The image reading apparatus according to claim 1 wherein the first signal generating section generates the first signal which remains in assert state for more than one period of the second signal.

4. The image reading apparatus according to claim 1 wherein the first signal generating section generates the first signal which turns into assert state at a period synchronous with the period of a predetermined clock,

the image reading apparatus further comprising a first selector which selects a predetermined clock used in the first signal generating section between any one of the reference clock and the second clock having a different frequency from the reference clock.

5. The image reading apparatus according to claim 4 wherein the second clock has a smaller frequency than the frequency of the reference clock.

6. The image reading apparatus according to claim 1 further comprising an image correcting section which corrects an image noise generated in an image represented by image data generated by reading the original document image and caused by the modulation of the frequency of a reference clock to gain the frequency dispersion clock.

7. The image reading apparatus according to claim 6 wherein the image correcting section corrects the image noise using shading correction of smoothing unevenness in reading sensitivity in the main scanning direction of the line scanning section.

8. The image reading apparatus according to claim 1 further comprising:

a data converting section that converts an analog image signal outputted from the line scanning section to digital

image data synchronously with the frequency dispersion clock;

a line buffer that stores the image data;

an image write section that writes image data converted by the data converting section into the line buffer synchronously with a timing when the first signal and the second signal turn into assert state; and

an image reading section that reads out image data written into the line buffer by the image write section at a timing synchronous with a predetermined basic timing.

9. The image reading apparatus according to claim 8 further comprising a second selector which selects the basic timing used in the image reading section between any one of a timing when the first signal turns to assert state and a timing when both the first signal and the second signal turn to assert state.

10. The image reading apparatus according to claim 8 wherein an image correcting section, which corrects an image noise generated in an image represented by image data generated by reading the original document image and caused by the modulation of the frequency of the reference clock to gain the frequency dispersion clock, is provided at a stage subsequent to the line buffer.

11. The image reading apparatus according to claim 8 wherein the line buffer also serves as a mirror image buffer which outputs mirror image data representing a mirror image obtained by inverting an image represented by image data generated by reading the original document image.

12. The image reading apparatus according to claim 1 wherein the line scanning section receives light emitted from each of plural points arranged in the main scanning direction on the original document image, accumulates respective electric charges corresponding to the light quantity, fixes the respective electric charges all at once synchronously with a timing when the first signal turns into assert state and converts successively the fixed respective electric charges to analog image signal synchronously with the frequency dispersion clock each time when the first signal and second signal turn into assert state.

13. An image forming apparatus that reads out an original document image synchronously with a frequency dispersion clock gained by a modulation which makes the frequency of a reference clock change cyclically at a predetermined modulation period and that forms plural images of the original document image, comprising:

a first signal generating section that generates a first signal which turns into assert state at a predetermined period;

a second signal generating section that generates a second signal which turns into assert state at a period synchronous with the modulation period of the frequency dispersion clock; and

a line scanning section that moves a scanning position on the original document image in an auxiliary scanning direction, scans the original document image in a main scanning direction perpendicular to the auxiliary scanning direction

each time when both the first signal and the second signal turn to assert state and thereby reads the original document image and outputs an analog image signal.

14. The image forming apparatus according to claim 13 wherein the second signal generating section generates the second signal which remains in assert state for more than one period of the frequency dispersion clock.

15. The image forming apparatus according to claim 13 wherein the first signal generating section generates the first signal which remains in assert state for more than one period of the second signal.

16. The image forming apparatus according to claim 13 wherein the first signal generating section generates the first signal which turns into assert state at a period synchronous with the period of a predetermined clock, the image forming apparatus further comprising a first selector which selects a predetermined clock used in the first signal generating section between any one of the reference clock and the second clock having a different frequency from the reference clock.

17. The image forming apparatus according to claim 16 wherein the second clock has a smaller frequency than the frequency of the reference clock.

18. The image forming apparatus according to claim 13 further comprising an image correcting section which corrects an image noise generated in an image represented by image data generated by reading the original document image and caused by the modulation of the frequency of a reference clock to gain

the frequency dispersion clock.

19. The image forming apparatus according to claim 13 wherein the image correcting section corrects the image noise using shading correction of smoothing unevenness in reading sensitivity in the main scanning direction of the line scanning section.

20. The image forming apparatus according to claim 13 further comprising:

a data converting section that converts analog image signal outputted from the line scanning section to digital image data synchronously with the frequency dispersion clock;

a line buffer that stores the image data;

an image write section that writes image data converted by the data converting section into the line buffer synchronously with a timing when the first signal and the second signal turn into assert state; and

an image reading section that reads out image data written into the line buffer by the image write section at a timing synchronous with a predetermined basic timing.

21. The image forming apparatus according to claim 20 further comprising a second selector which selects the basic timing used in the image reading section between any one of a timing when the first signal turns to assert state and a timing when both the first signal and the second signal turn to assert state.

22. The image forming apparatus according to claim 20 wherein an image correcting section, which corrects an image

noise generated in an image represented by image data generated by reading the original document image and caused by the modulation of the frequency of a reference clock to gain the frequency dispersion clock, is provided at a stage subsequent to the line buffer.

23. The image forming apparatus according to claim 20 wherein the line buffer also serves as a mirror image buffer which outputs mirror image data representing a mirror image obtained by inverting an image represented by image data generated by reading the original document image.

24. The image forming apparatus according to claim 13 wherein the line scanning section receives light emitted from each of plural points arranged in the main scanning direction on the original document image and accumulates respective electric charges corresponding to the light quantity, fixes the respective electric charges all at once synchronously with a timing when the first signal turns into assert state and converts successively the fixed respective electric charges to analog image data synchronously with the frequency dispersion clock each time when the first signal and second signal turn into assert state.

25. An image reading method that reads out an original document image synchronously with a frequency dispersion clock gained by a modulation which makes the frequency of a reference clock change cyclically at a predetermined modulation period, comprising the steps of:

generating a first condition in which assert state at

a predetermined period is generated;

generating a second condition in which assert state is generated at a period synchronous with the modulation period of the frequency dispersion clock; and

conducting line scanning in which a scanning position on the original document image is moved in an auxiliary scanning direction, and the original document image is scanned in a main scanning direction perpendicular to the auxiliary scanning direction synchronously with the modulation period of the frequency dispersion clock each time when the assert state is generated in the step of generating the first condition and the step of generating the second condition, and thereby allowing reading of the document image.

26. The image reading method according to claim 25 wherein the step of generating the second condition generates assert state continuously for more than one period of the frequency dispersion clock.

27. The image reading method according to claim 25 wherein the step of generating the first condition generates assert state continuously for more than one period of the second condition.

28. The image reading method according to claim 25 wherein the step of generating the first condition which generates assert state at a period synchronous with the period of a predetermined clock, the image reading method further comprising a first selection step which selects the predetermined clock used in the step of generating the first

condition between any one of the reference clock and the second clock having a different frequency from the reference clock.

29. The image reading method according to claim 28 wherein the second clock has a smaller frequency than the frequency of the reference clock.

30. The image reading method according to claim 25 further comprising a step of correcting an image in which correction is made to an image noise generated in an image represented by image data generated by reading the original document image and caused by the modulation of the frequency of a reference clock to gain the frequency dispersion clock.

31. The image reading method according to claim 30 wherein the step of correcting an image corrects the image noise using shading correction of smoothing unevenness in reading sensitivity in the main scanning direction in the step of conducting line scanning.

32. The image reading method according to claim 25 further comprising the steps of:

converting data in which an image read in the line scanning is converted to digital image data synchronously with the frequency dispersion clock;

writing image in which image data converted by the data conversion is written into the line buffer synchronously with a timing when the assert state is generated in the step of generating the first condition and the step of generating the second condition; and

reading image in which image data written into the line

buffer by the step of writing image is read at a timing synchronous with a predetermined basic timing.

33. The image reading method according to claim 32 further comprising a second selection step which selects the basic timing used in the step of reading image between any one of a timing when the assert state is generated in the step of generating the first condition and a timing when the assert state is generated in the step of generating the first condition and the step of generating the second condition.

34. The image reading method according to claim 32 wherein a step of correcting an image, in which correction is made to an image noise generated in an image represented by image data generated by reading the original document image and caused by the modulation of the frequency of a reference clock to gain the frequency dispersion clock, is provided subsequent to the image reading step.

35. The image reading method according to claim 32 wherein the line buffer also serves as a mirror image buffer which outputs mirror image data representing a mirror image obtained by inverting an image represented by image data generated by reading the original document image.

36. The image reading method according to claim 25 wherein the step of conducting the line scanning receives light emitted from each of plural points arranged in the main scanning direction on the original document image, accumulates respective electric charges corresponding to the light quantity, fixes the respective electric charges all at once

synchronously with a timing when the assert state is generated in the step of generating the first condition, and converts successively the fixed respective electric charges to analog image signal synchronously with the frequency dispersion clock each time when the assert state is generated in the step of generating the first condition and the step of generating the second condition.